



SP600/601 Operator's Manual

Draw a fine line

SP1800 MAIN BOARD SCHEMATIC

200035

Error Computer Inc. © 1986, 1987, 1988

The United States Federal Communications Commission (in 47 CFR 15.838) has specified that the following notice be brought to the attention of users of this product.

**FEDERAL COMMUNICATIONS COMMISSION
RADIO FREQUENCY INTERFERENCE
STATEMENT**

"This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J or Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. Shielded data cables were used during the type test; therefore, properly shielded and terminated data cables should be used to reduce potential interference. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- relocate the computer with respect to the receiver
- move the computer away from the receiver
- plug the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

'How to identify and Resolve Radio-TV Interference Problems'.

This booklet is available from the US Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4."

CANADIAN STANDARDS ASSOCIATION

This digital apparatus does not exceed Class B limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department Of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de Classe B prescrites dans Le Reglement Sur Le Brouillage Radioelectrique Edicte Par Le Ministere Des Communications Du Canada.

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General Information

This manual explains how to operate the ENCAD SP600/601 digital plotter. It also contains the procedures for initial inspection, hardware installation, preparation for use, handling and shipping for in-warranty repairs, and repacking the plotter for shipment.

The SP600 digital plotter plots on 8.5" x 11" or 11" x 17" size media using 115 Vac. The SP601 digital plotter plots on ISO A4 or A3 size media using 220 Vac. Unless otherwise noted, all use of "SP600" refers to both SP600 and SP601.

The SP600 plotter operates with all software packages that include a device driver for HP7475 plotters and software packages that include a device driver for SP600 plotters.

In addition, the SP600 accepts inputs from either Centronics parallel or RS-232-C serial interfaces.

Introduction to Manual

This manual uses figures where possible instead of written text for brevity and clarity.

Figures in this manual are for illustrative purposes and might not be drawn in exact proportion to emphasize certain items.

Each section could repeat information contained in other sections because each section should "stand alone". That is, you can find the information you want without having to search thru the whole manual.

This manual uses the recently-accepted phonetic spelling of certain words for easier reader comprehension. For example, thru instead of through and removeable instead of removable, and so forth.

AC Line Power Specifications

SP600 = 115 Vac + 10%, 48-65 Hz

SP601 = 220 Vac + 10%, 48-65 Hz

Initial Inspection

Verify that your shipment is complete. The SP600 is shipped in one box and includes the SP600, the Pen Carousel, and Accessory Package.

Inspect the SP600 for any apparent physical damage. Photos of damage are recommended to substantiate subsequent claims.

Note

Save shipping container and packing material for possible future shipping.

Packing For Re-shipment

If the plotter must be re-shipped, use the original shipping container and packing materials. If the original materials are not available, use the following materials.

1. A double-wall carton, test strength 350 pounds, large enough to enclose the system when surrounded by the packing material,
2. Heavy paper cardboard covering all instrument surfaces,
3. Polyurethane, plastic bubble pack, or corrugated paperboard between instrument projections and the carton's inner wall, and
4. At least 4 inches of shock absorbing material such as extra- firm polyurethane.

Warranty or Damage Claims

Immediately notify the carrier and Enter Computer, Inc. if the plotter was physically damaged in shipment or does not operate as specified.

Be sure to contact the Customer Service Department at 1-(619) 578-4070 or 1-(800) 356-2808 to obtain a Return Material Authorization before returning equipment.

Please attach a card to the unit that shows your company's name, address, person to contact, and telephone number. A short description of the damage or problem will also be helpful.

The use of flowable styrofoam packing materials (like popcorn, peanuts, shells, and spaghetti) is a leading cause of equipment damage during shipment. Any shipping damage resulting from the use of flowable packing material by customer will be charged to the customer.

Safety Precautions

The SP600 plotter presents no hazards when operated according to the instructions in this manual. Read the following safety precautions before applying power to the system.

Electrical Shock Hazard

The SP600 system presents no electrical shock hazards to personnel if your wiring complies to the National Electric Code (NEC) or the code of the country where installed and the following warning is observed.

WARNING

Never remove instrument covers when AC power is connected to the system. Dangerously high voltage is present inside the instrument whenever AC power is connected.

Instrument covers should be removed only by qualified personnel.

Use grounded 3-prong power jacks.

Equipment Warranty

Enter Computer, Inc. (Enter) warrants the ENCAD SP600/601 Plotter to be in good working order and free from defects in material and workmanship for a maximum period of ninety (90) days. This warranty applies only to an SP600/601 purchased from Enter or an authorized distributor or authorized dealer.

If this product should fail to be in good working order during the warranty period, Enter will repair or replace, at no charge, the product or components that are defective. The buyer must pay shipping costs to the factory, Enter will pay shipping costs back to the buyer.

The intent of this warranty is to provide repair and replacement of parts subjected to normal wear and tear when operated according to Enter's directions. The option to replace or repair defective materials is reserved by Enter. This warranty does not cover damage caused by accident, misuse, misapplication, general environmental conditions, or unauthorized service or modification.

The buyer's sole and exclusive remedy against the seller shall be for the repair or replacement of defective parts and shall not encompass any other damages, including, but not limited to, loss of profit, and special, incidental, or similar claims.

Enter specifically disclaims all other warranties, expressed or implied, including but not limited to, implied warranties of merchantability and fitness for a particular purpose. In no event shall Enter be liable for any loss of profit or other commercial damages, including, but not limited to, special, incidental, consequential, or other damages.

Some states do not allow the exclusion or limitations of incidental or consequential damages for consumer products, so the preceding limitations or exclusions may not apply to you.

This warranty gives you specific legal rights and you may also have other rights that vary from state to state.

For service, contact Enter Computer. Be sure to include a description of the problem with the product. If the warranty has not been registered with Enter (by submission of the Warranty Registration Card), then a dated proof-of-purchase must be submitted with the defective product. Enter does not assume any responsibility for loss of or damage to product in transit. If the product is damaged in shipment, immediately notify the carrier.

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Installation

This section explains how to interface your SP600 to a host computer and to configure switch settings.

The SP600 accepts both Centronics parallel or RS232-C serial input data. The correct interface for your system depends on which port you will use to connect the plotter with your computer and the kind of connecting plug required for your computer.

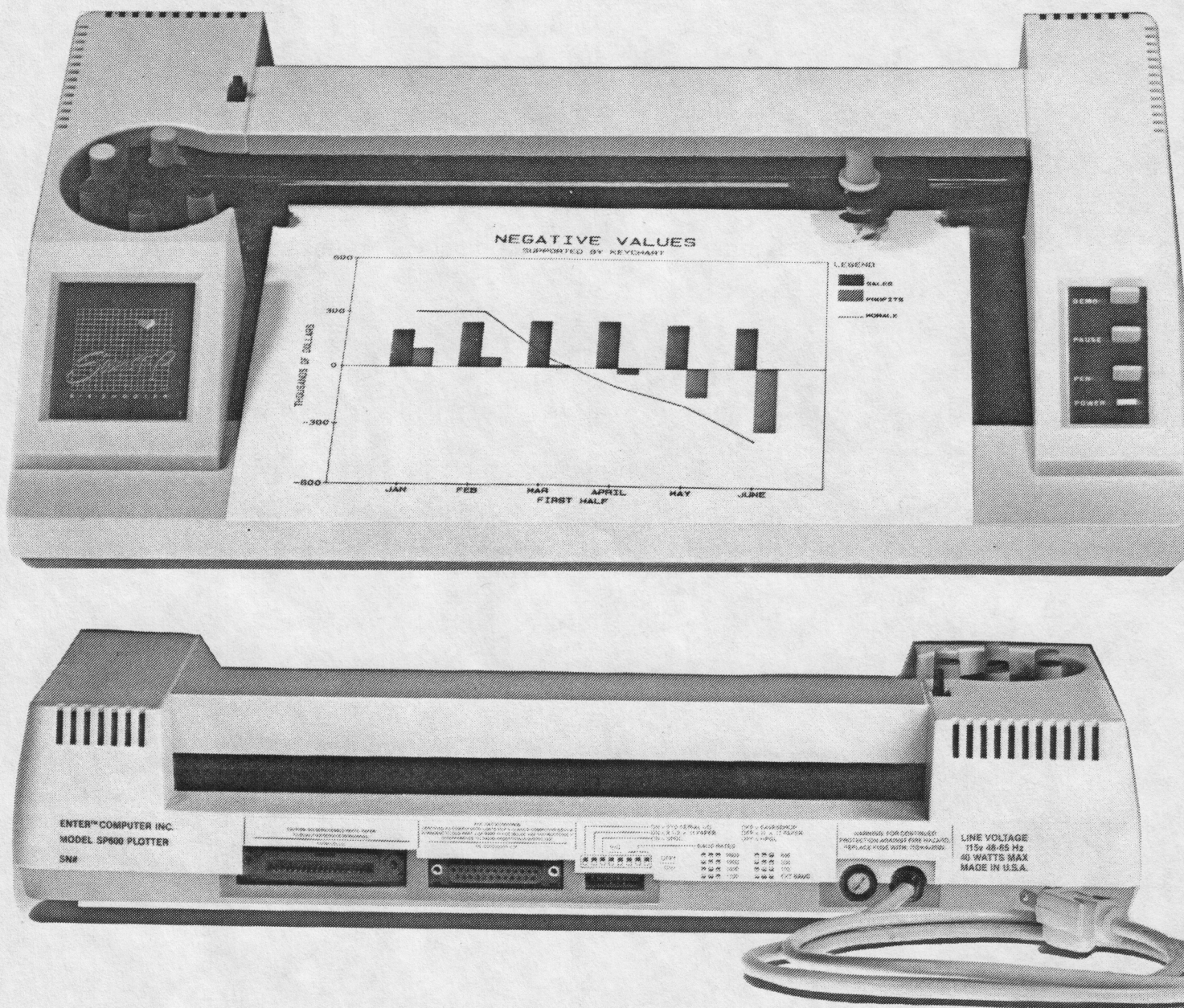


Figure 2-1. SP600 Front and Rear Views

Plotter/Computer Interface

When using the serial interface port (RS232-C), you will need to configure the host computer, software program, and the SP600 plotter to the same baud rate.

RS232 Pin Assignments

Pin	Signal	Direction	Description
1	FG	—	Frame ground
2	TXD	Output	Transmitted data - data from the plotter
3	RXD	Input	Received data - data to the plotter
6	DSR	Input	Data set ready - not used
7	SG	—	Signal ground
17	EXCK	Input	External clock input
16	SRXD	Input	Secondary received data - data to the plot
14	STXD	Output	Secondary transmitted data - data from the
20	DTR	Output	Data terminal ready - this line is used in the hardware handshake mode as the busy line.

Note

The SP600 uses the following parameters: 8 data bits, one stop bit, and no parity. The host computers mode of operation must be set to initialize the Asynchronous Communications Adapter (serial port) in the following manner. In DOS type: MODE COM1:9800,8,N,1,P <CR>. If you are to use COM2 instead of COM1 just substitute.

Parallel Pin Assignments

Pin	Name	Direction	Description
1	Strobe	Input	The strobe line informs the plotter that data is available at the 8 data lines. The strobe pulse is a high to low pulse with a duration of 1 S or more.
2	Data 0	Input	
3	Data 1	Input	
4	Data 2	Input	
5	Data 3	Input	
6	Data 4	Input	
7	Data 5	Input	
8	Data 6	Input	
9	Data 7	Input	Most significant data line
10	ACK	Output	A 2 S to 5 S high to low going pulse indicates that data has been received and the plotter is ready to accept data.
11	Busy	Output	A low on this line indicates that the plotter is ready to receive data. A high indicates that the plotter cannot receive data.
12	PE	Output	Always low (OV)
13	SLCT	Output	Always high (+5V)
14	N.C.	—	
15	N.C.	—	
16	GND	—	Logic ground
17	CHAGND	—	Chassis ground - earth ground
18	N.C.	—	
19-30	GND	—	Logic ground
31	N.C.	—	
32	*Error	Output	Always high (+5V)
33	GND	—	Logic ground
34	N.C.	—	Do not connect
35	VP	Output	Pulled high to 5V through 4.7 k Ω resistor
36	N.C.	—	Do not connect

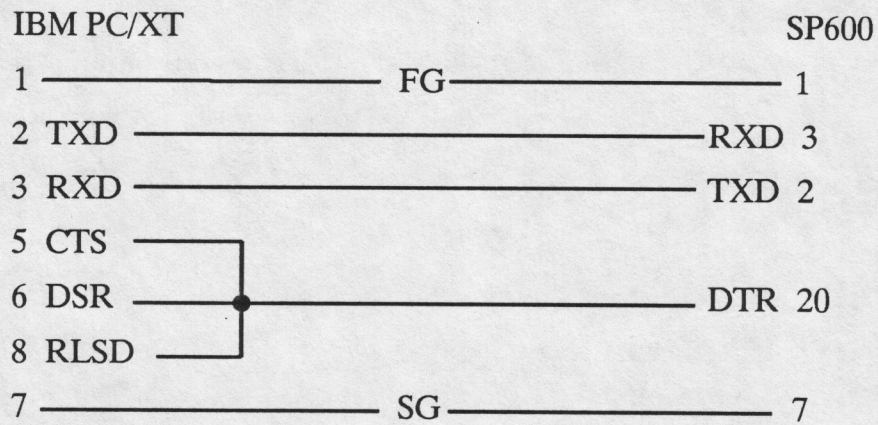


Figure 2-2. IBM/XT to SP600 Pin Assignments

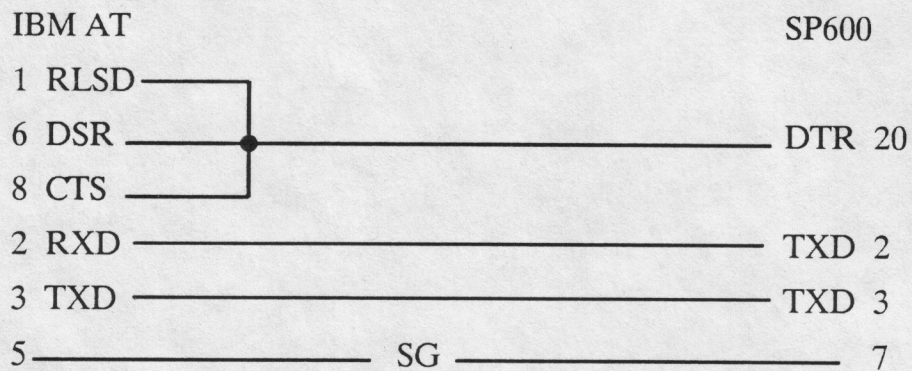


Figure 2-3. IBM AT to SP600 Pin Assignments

APPLE MACINTOSH

MAC 128 & 512 DB-9 CONNECTOR

PC		SP600
Frame Ground	1	1 Frame Ground
GND	3	7 GND
TXD-	5	3 RXD
Handshake	7	20 DTR
RXD-	9	2 TXD

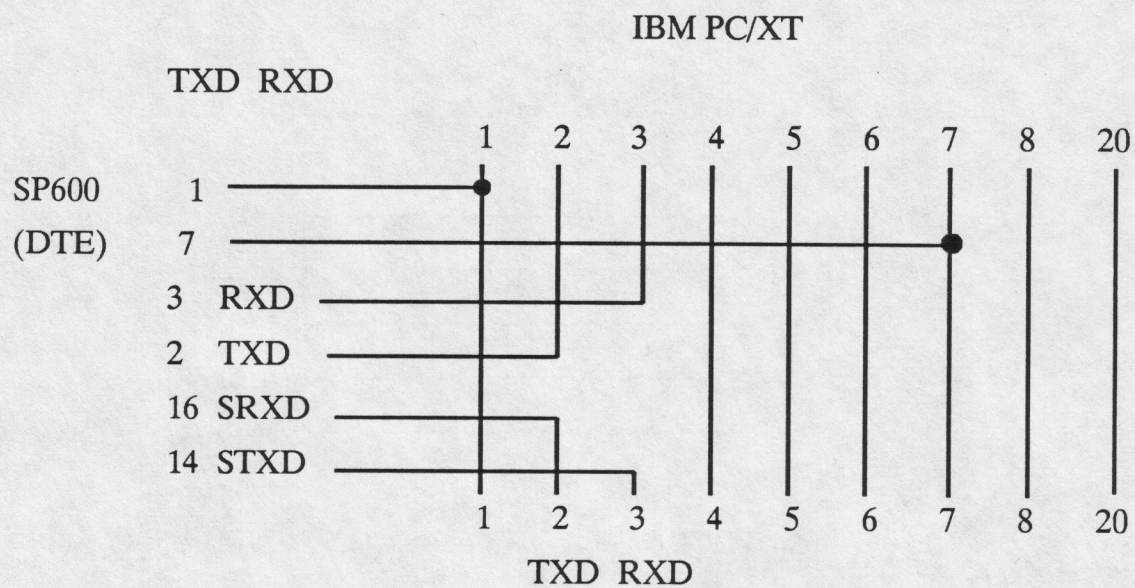
MAC PLUS & SE MINI DIN-8 CONNECTOR

PC		SP600
Frame Ground	4	1 Frame Ground
RXD	+8	7 GND
TXD-3		3 RXD
Handshake In	2	20 DTR
RXD-5		2 TXD

APPLE IIE With "Super Serial Card"

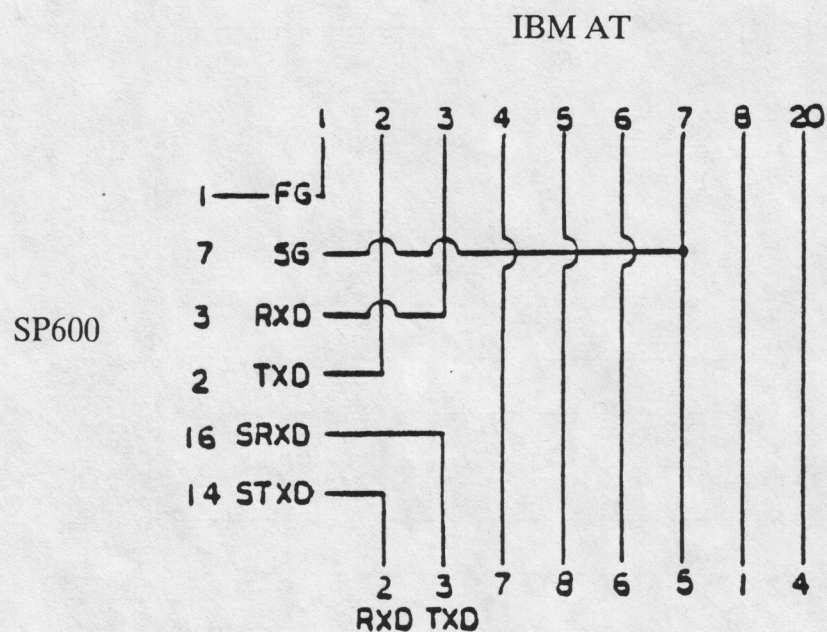
PC		SP600
1		1
2		2
3		3
4		4
5		5
6		6
7		7
8		8
20		20

Figure 2-4. Apple MacIntosh to SP600 Pin Assignments



NOTE: This is for serial port 25-pin DIN connector.

Figure 2-5. IBM PC/XT to SP600 (25-Pin DIN Connector)



NOTE: This is for serial port 9-pin DIN connector.

Figure 2-6. IBM AT to SP600 (9-Pin DIN Connector)

If your computer is interfaced to a conventional parallel printer, use the same cable to connect to the SP600 plotter.

**FEMALE
36-PIN CONNECTOR**

**MALE
DB 25-PIN CONNECTOR**

1	➤	* STROBE	➤	1
2	➤	DATA 0	➤	2
3	➤	DATA 1	➤	3
4	➤	DATA 2	➤	4
5	➤	DATA 3	➤	5
6	➤	DATA 4	➤	6
7	➤	DATA 5	➤	7
8	➤	DATA 6	➤	8
9	➤	DATA 7	➤	9
10	➤	*ACK	➤	10
11	➤	BUSY	➤	11
12	➤	PE	➤	12
13	➤	SELECT IN	➤	13
14	➤	AF	➤	14
15	➤	*ERROR	➤	32
16	➤	INIT	➤	31
17	➤	SEL IN	➤	36
18	➤	GROUND	➤	33
19	➤	GROUND	➤	19
20	➤	GROUND	➤	20
21	➤	GROUND	➤	21
22	➤	GROUND	➤	22
23	➤	GROUND	➤	23
24	➤	GROUND	➤	24
25	➤	GROUND	➤	25

Figure 2-7. Centronics Parallel Interface

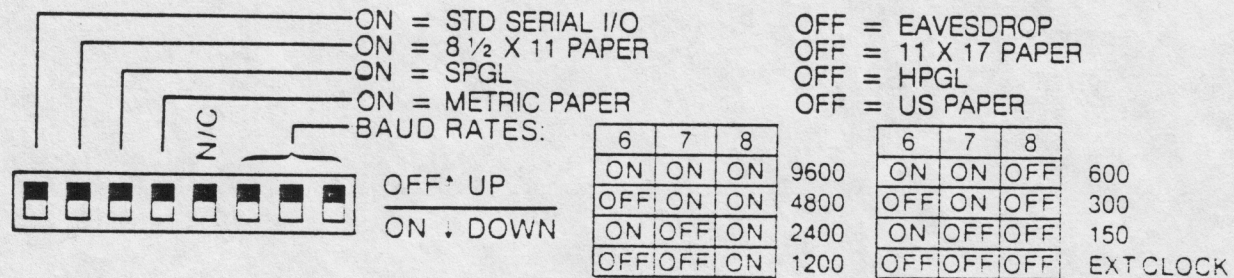


Figure 2-8. Switch Settings

Rocker Arm #1

For normal RS-232 operation, set the rocker arm in the ON (down) position. To configure for eavesdrop operation, set rocker arm to OFF (up) position.

Note

Eavesdropping - This is a passthru mode which allows the plotter to be placed between the host (usually a mini or mainframe) and a terminal (e.g. a micro). The plotter will only act on those commands meant for plotting. To use this mode, the plotter must be turned on at all times; the terminal is to be used whether plotting is in progress or not.

Rocker Arm #2

To select 8.5" x 11" media, set rocker arm in the ON (down) position. To select 11" x 17" media, set rocker arm in the OFF (up) position.

Note

SP601 is Metric, ON = A4, OFF = A3.

Rocker Arm #3

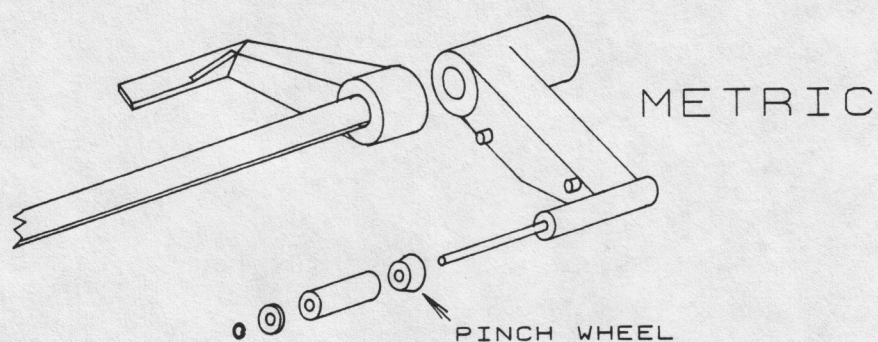
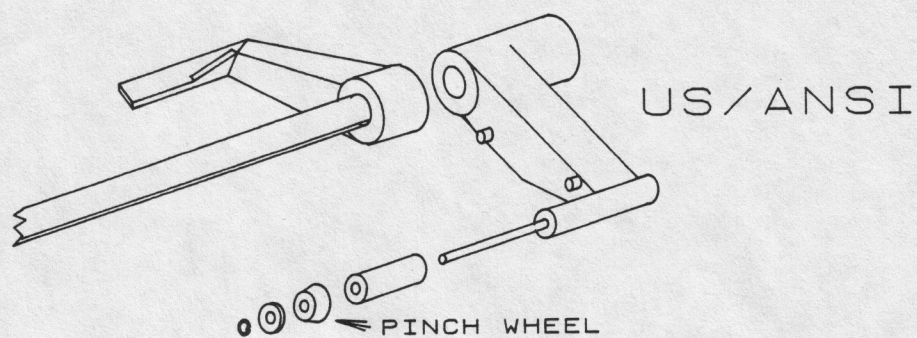
For software packages that include a device driver for HP7475 plotters, set rocker arm in the OFF (up) position. For software packages that include a device driver for SP600 plotters, set rocker arm in the ON (down) position.

Rocker Arm #4

To select U.S. media sizes, set rocker arm in the OFF (up) position. To select Metric media sizes, set rocker arm in the ON (down) position.

Note

The SP600 is shipped with the right pinch wheel assembly U.S. media sizes. To use metric media, change the pinch wheel assembly to conform to the following figure.



Rocker Arm #5

Not used.

Rocker Arms #6 thru #8

These rockers select baud rate from 150 baud to 9600 baud.

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Operation

This section defines Keypad operation, explains how to load pens into the Pen Carousel, install the Pen Carousel into the plotter, and load media.

Keypad

"DEMO" = Executes a full plotter test. The demonstration plot tests the mechanics of the SP600 plotter.

"PAUSE" = Executes a full plotter stop. The power LED will blink and the plotter will put the current pen away. This button can be used to change the entire pen carousel while currently plotting. To resume plotting press the "PAUSE" button a second time.

"PEN" = Changes the pen currently used. The plotter stops, the power LED blinks, and the plotter will change to the next pen position in the carousel. To resume plotting, press the "PAUSE" button.

Loading Pens

Remove the Pen Carousel from the plotter by gripping the center of the top of the pen carousel and lifting straight upward. Remove caps from pens. Hold the carousel in one hand. Place the pen tip into the soft rubber cap and slide pen into the spring-loaded capture lever. Repeat this operation to load all carousel stalls. There has to be at least one pen in the pen carousel, stall #1, to initialize the plotter.

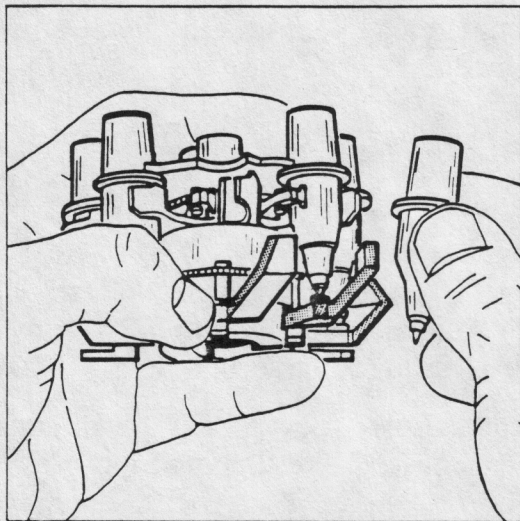
CAUTION

Never insert a pen into the carriage assembly. The SP600 will not plot when six pens are in the pen carousel and a seventh pen in the carriage assembly.

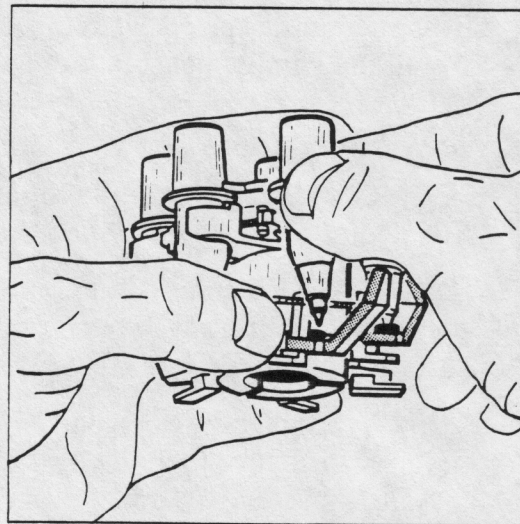
NOTE

Pens are capped automatically and will stay fresh for a short time in the pen carousel. Remove pens from the pen carousel and carriage if the plotter is not to be used for an extended period.

Loading Pens (A)



Loading Pens (B)



Loading Pens (C)

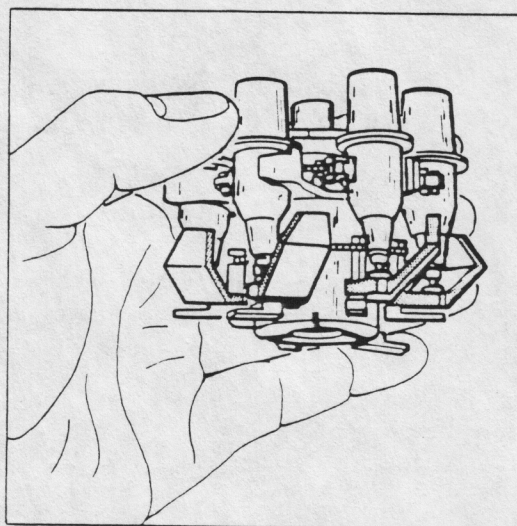


Figure 3-1. Loading Pens Into The Carousel

Installing The Pen Carousel

The pen carousel sits on a ratchet. The ratchet and the pen carousel are keyed for pen number one. Grip the top of the pen carousel and lower onto the ratchet. Rotate the pen carousel until the pen carousel seats completely.

NOTE

The plotter will not initialize if the pen carousel is not on the ratchet before the plotter is turned on.

Install Carousel

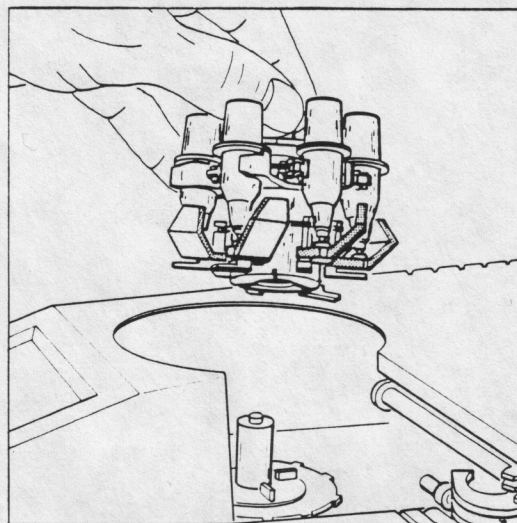


Figure 3-2. Installing the Carousel

Loading The Plotting Media

The SP600 digital plotter uses pre-cut flat plotting media. Do not use pre-rolled media. Remember to store bond and tracing media in a dry location. Excessive moisture content in the media will cause skips and smears.

To load all sizes of plotting media press the paper load lever, located beyond the pen carousel, back until pinch wheels are raised from the plotting platen.

While holding the lever back, place the 11 inch (297 mm) side of the media along the alignment marks on the platen and the upper left corner of media at the junction of the marks. Release the Paper Load Lever.

To remove the media, press the paper load lever until the pinch wheels are raised.

CAUTION

Do not pull the media out. This will cause damage to both the paper drive assembly and pinch wheels.

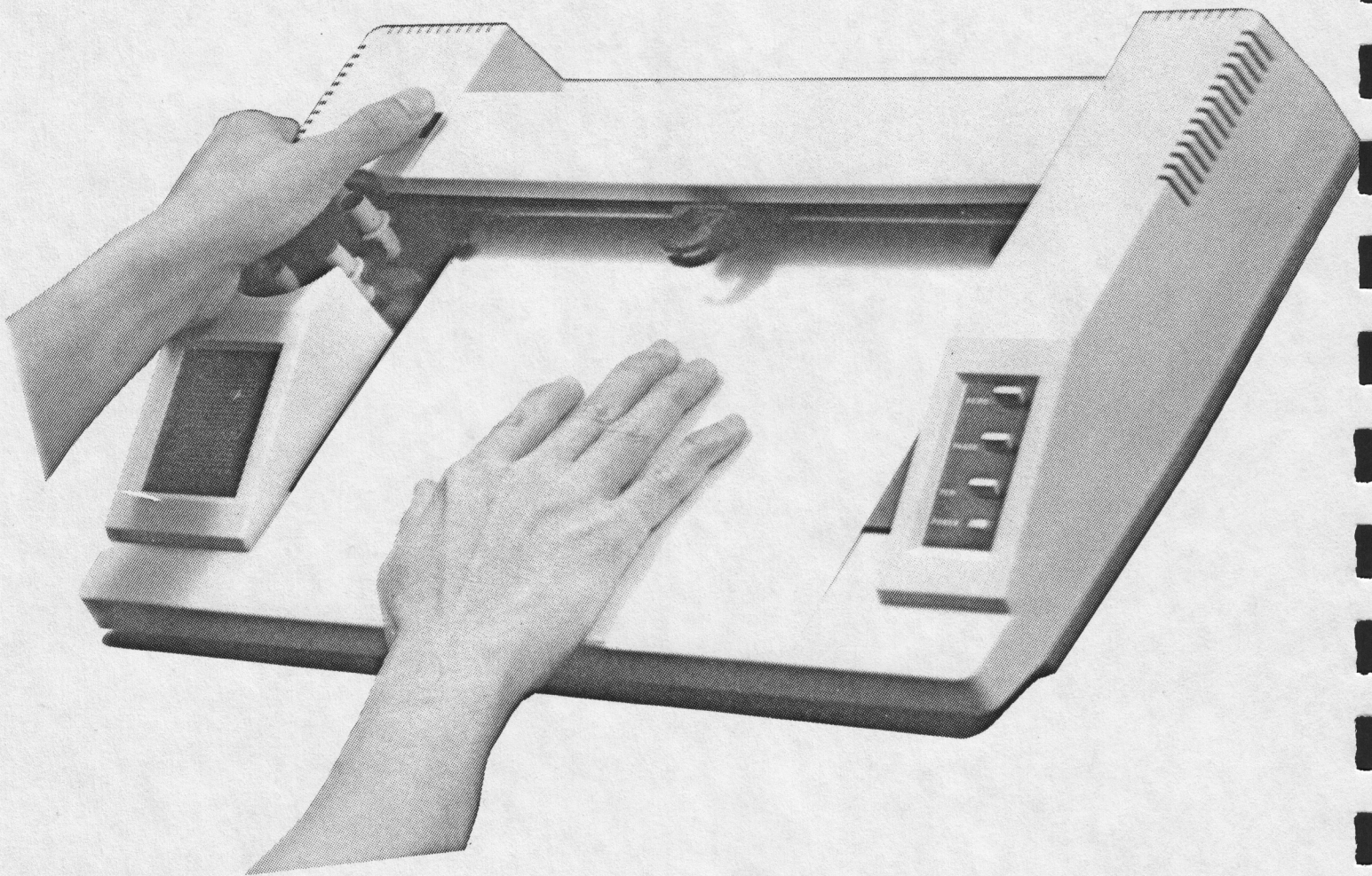


Figure 3-3. Loading the Plotting Media

Performance Check And Plotter Care

This section provides performance checks and plotter care procedures. The performance check will give the user a high degree of confidence that the plotter is operating properly.

Use the following items to perform the check.

Six Plotter Pens

Paper - 8.5" x 11" or ISO A4

Self Test and Demo Plot

The SP600 series plotters contain several internal test routines. On power-up, the SP600 does an automatic memory and processor test. If any part of this test fails, the power LED will blink.

See Error Condition section for an explanation of these tests.

The "DEMO" button will execute a full plotter test. The output should match the figure of the following sample test plot.

Creating A Demonstration Plot

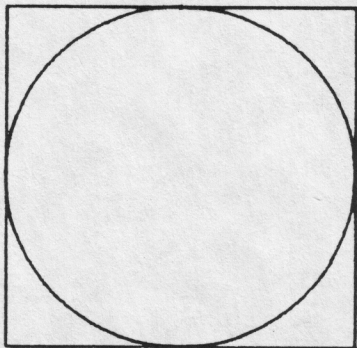
The demonstration plot will fully test the mechanics of the SP600 plotter. Use the following steps to make a demonstration plot.

1. Load six pens into the pen carousel.

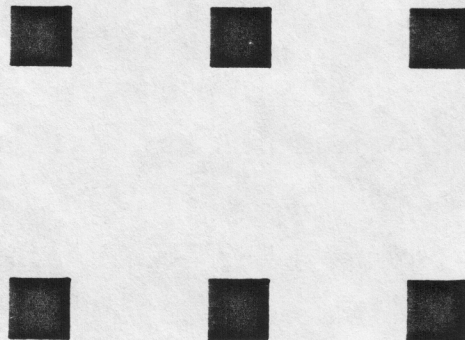
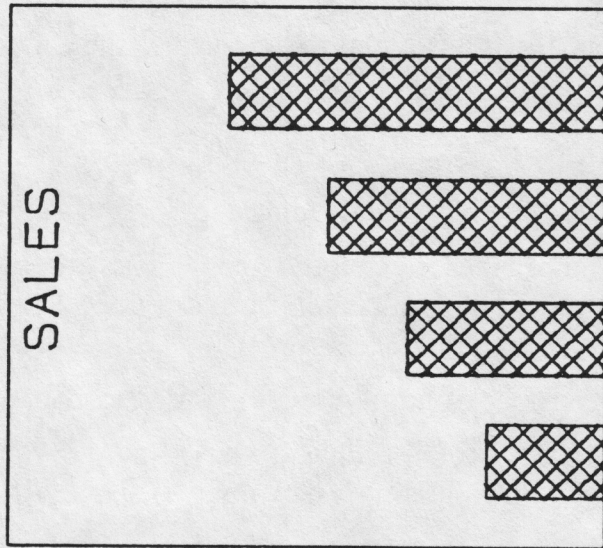
Recommended pen order.

1---Black	4---Green
2---Red	5---Orange
3---Blue	6---Black

2. Verify plotter configuration switch is set for 8.5" x 11" or A4 size media.
3. Place pen carousel onto ratchet and turn plotter on.
4. Load media.
5. Depress the "DEMO" button on the front panel.
6. Observe the plotting action and verify that the plotter picks pens correctly and that the test plot looks exactly like the following figure. If the plot does not match the figure contact Enter Computer or its authorized Service Centers for assistance.



PLOTTED BY:
SWEET-P SP600/601
(619) 578-4070



Plotter Care

Clean the SP600 digital plotter with a soft, warm, damp cloth. Clean the pen caps on the pen carousel with a cotton swab.

Never attempt to clean the grit wheels on the paper drive assembly. Solvents may loosen the grit and cause permanent paper slippage during plotting.

The SP600 plotter does not require periodic lubrication. All moving parts in the plotter have self-lubricating components. Using any lubricants can adversely affect the performance of the plotter.

CAUTION

Unplug the AC line cord before cleaning the plotter. Do not use solvents to clean the plotter as they could attack the plastic components and damage the plotter.

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Error Conditions

Power light blinks and the plotter does not perform

A blinking power light is the plotter's way of telling you that it is not ready to plot. It may be in the pause mode. Press the PAUSE key once. If the blinking ceases, you have solved the problem.

If the blinking persists, an error has occurred. Check that you have not loaded too many pens in the plotter. Load pens only into the carousel, never into the carriage. If a seventh pen has been installed, remove it.

To clear an error condition, reset your computer and reset the plotter by turning power off and waiting 5 seconds then turning power on again, or, by pressing the "DEMO" and "PEN" keys at the same time, you will reset all power-up default conditions. This is useful for clearing errors and is the same as turning the power off, then on again. Now insert a new sheet of paper and begin the plot again.

The power LED fails to illuminate when power is turned on

Be sure that the plotter is securely plugged in.

Insert paper and press the DEMO key. If the plotter responds, the power light itself has burned out. If the plotter does not respond, replace the fuse at the rear of the unit. SP600 uses a standard AGC1 fuse, available at most hardware stores.

Pens are dropped

Reset your computer, turn off the plotter, load pens correctly, and begin operations again.

Pens will be dropped when six pens are in the carousel and one is in the carriage (referred to as the "seven pen" condition). Pens may also be dropped if incorrectly mounted in carousel or if the user interferes with the carriage or carousel while plotting.

Plotting pen moves to a plotting boundary and stops

This is SP600's way of keeping track of pen destinations outside the plotting page. Your software is probably designed for B-size, 11 x 17" (A3, 272 x 402 mm) media.

Turn the plotter off, and select rocker arm #2 at the rear of the plotter for the correct media size. Then turn power on.

Plotter ejects paper

This is the result of a paper loading error or incorrect setting of the media size rocker at the rear of the plotter. Change the position of rocker arm #2, turn power OFF & ON.

Computer responds to software, but the plotter does not

Be sure that your interface connectors remain securely plugged in to both your computer and the plotter.

Be sure that all of the configuration rockers are set correctly.

If this is the first time you have used the plotter, be sure your software is configured for the correct I/O Port, be sure that you have interfaced with your computer correctly.

Power light blinks after the power is turned on

The plotter has failed its Power-On diagnostics.

Slow Blink (1.3Hz)	Processor test failure.
Medium Blink (3Hz)	ROM checksum error.
Fast Blink (10Hz)	RAM test error.

For Technical assistance or Service contact the factory.

Enter Computer, Inc.
ATTN: Customer Service
7710 Kenamar Court
San Diego, CA 92121
(619) 578-4070
(800) 356-2808
FAX: (619) 578-4613
TELEX: 1817940 Enter Comp SDG

Instructions

The ENCAD SP600/601 Plotter provides HPGL and SPGL support. For a complete description of these commands refer to the SP600 Programming Manual.

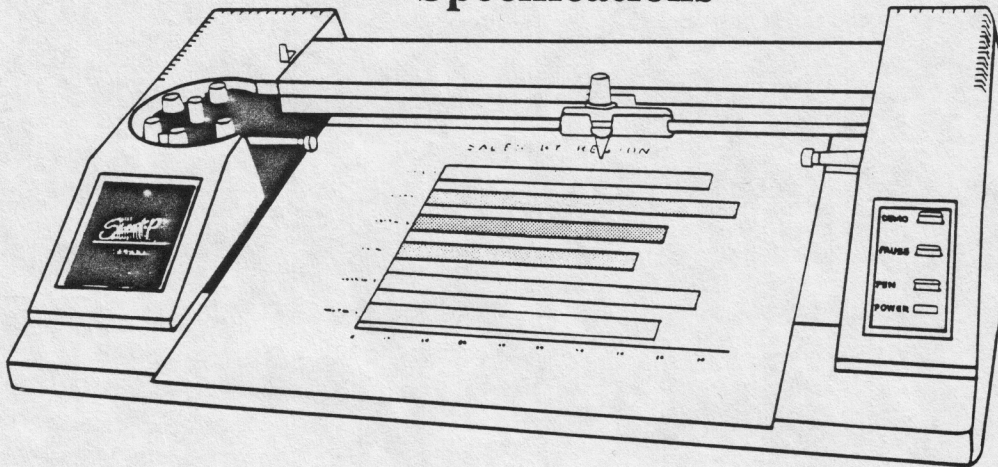
HPGL Command Set

AA	Arc Absolute	OI	Output Identification
AR	Arc Relative	OO	Output Options
CA	Designate Alternate Character Set	OP	Output P1 and P2
CI	Circle	OS	Output Status
CP	Character Plot	OW	Output Window
CS	Designate Standard Character Set	PA	Plot Absolute
DC	Digitize Clear	PD	Pen Down
DF	Default Values	PR	Plot Relative
DI	Absolute Character Direction	PS	Paper Size
DP	Digitize Point	PT	Pen Thickness
DR	Relative Character Direction	PU	Pen Up
DT	Text Delimiter	RA	Shade Rectangle Absolute
EA	Edge Absolute	RO	Rotate Coordinate System
ER	Edge Relative	SA	Select Alternate Character Set
EW	Edge Pie Wedge	SC	Scale
FT	Fill Type	SI	Absolute Character Size
IM	Input Mask	SL	Slant
IN	Initialize	SM	Symbol Mode
IP	Input Scaling Points	SP	Select Pen
IW	Input Window	SR	Size Relative
LB	Label	SS	Select Standard Character Set
LT	Line Type	TL	Tick Length
OA	Output Actual Position	UC	User-Defined Character
OC	Output Commanded Position	VS	Velocity
OD	Output Digitized Point	WG	Shade Wedge
OE	Output Error	XT	X-axis Tick
OF	Output Factors	YT	Y-axis Tick
OH	Output Hardclip Limits		

SPGL Command Set

AA	Arc Absolute	OF	Output factors
AF	Area fill	OH	Output hard clip limits
AR	Arc Relative	OI	Output identification
AX	Draw X-axis	OO	Output options
AY	Draw Y-axis	OP	Output P1 and P2
CA	Designate alternate character set	OS	Output status
CI	Circle	OW	Output window
CP	Character space plot	PD	Pen down
CR	Rotate Coordinate System	PS	Page size
CS	Size absolute	PT	Draw Point
DA	Draw to actual coordinates	PU	Pen up
DC	Digitize clear	RA	Shade rectangle absolute
DL	Down load	RE	Reset
DP	Digitize point	RC	Rotate character relative
DR	Draw to pen-referenced coordinates	RO	Rotate absolute
DS	Designate standard character set	RR	Shade rectangle relative
DV	Default values	RS	Resolution
EA	Edge rectangle absolute	SA	Select alternate character set
ER	Edge rectangle relative	SC	Scale plotting area
EW	Edge pie wedge	SL	Slant
FT	Fill type	SM	Symbol mode
HO	Home	SP	Select Pen
IM	Input error mask	SR	Size relative
IP	Input scaling points	SS	Select standard character set
IW	Input window	TD	Text delimiter
LN	Draw line	TL	Tick length
LT	Line type	TP	Pen thickness
MA	Move to actual coordinates	TX	Text
MK	Mark a point with a character	UC	User defined character
MR	Move to pen-referenced coordinates	VS	Velocity
OA	Output actual pen status	WG	Shade wedge
OC	Output command pen status	XT	X-axis tick
OE	Output errors	YT	Y-axis tick

SP600/601 Plotter Specifications



Media:

Paper or Transparency Film

SP600

8-1/2" x 11" Media (A)

11" x 17" Media (B)

SP601

210 x 297 mm Media (A4)

297 x 420 mm Media (A3)

Plotting Area:

SP600 = 7.8 x 10.2 inches (A)

10.2 x 16.3 inches (B)

SP601 = 191 x 272 mm (A4)

272 x 402 mm (A3)

Axis Orientation:

X-axis is the longer page dimension

Y-axis is the shorter page dimension

Mechanical Resolution:

.004" (Smallest physical step-size)

Software Resolution:

.001" (Smallest addressable step-size)

Repetition Accuracy:

0.004" - same pen

0.008" - different pen

Max. Plotting Velocity:

14" per second

Acceleration:

3G

Buffer:

1.5K bytes,
expandable to 7.5K bytes

Input/Output Ports:

8 bit Centronic compatible
parallel and RS232 serial
(selectable baud) with eaves
drop (refer to the SP600/601
Programmer's Manual for more
information)

Data Format:

1 Start Bit, 8 Data Bits,
1 Stop Bit, No Parity

Power:

SP600 = 115 VAC + 10%, 48-65 Hz,
40 Watts (U.S.)

SP601 = 220VAC & 240VAC + 10%,
48-65 hZ, 40 Watts

Operating Temperature Range:

0 deg - 50 deg C

Operating Relative Humidity:

10% to 90% RH, non-condensing

External Dimensions:

8.23 cm H x 45.7 cm W x 29.2 cm D
(3.2" x 18" x 11.5")

Weight:

8 Pounds max

Internal Character Sets:

18 - ANSI ASCII, French/German,
Scandinavian, Spanish/Latin Ameri-
can, JIS ASCII, Roman 8 Exten-
sions, ISO IRV, ISO Swedish, ISO
Swedish for Names, ISO
Danish/Norwegian, ISO
Danish/Norwegian for Names, ISO
German, ISO French, ISO United
Kingdom, ISO Italian, ISO Spanish,
ISO Portuguese

